

WHAT IS CLAIMED IS:

1. A method for transforming an amorphous silicon layer into a polysilicon layer, comprising:

providing an amorphous silicon substrate, and doping said

5 amorphous silicon substrate with an inert gas atom; and

heating the surface of said amorphous silicon substrate by heat treatment or thermal process.

2. The method of claim 1, wherein said inert gas atom is selected from a group consisting of helium, neon, argon, krypton, xenon and radon.

10 3. The method of claim 2, wherein said inert gas atom is argon.

4. The method of claim 1, wherein the atom percentage of said inert gas atom in said amorphous silicon substrate is in the range of from 1 to 0.001.

5. The method of claim 1, wherein said inert gas atom is doped by 15 plasma doping.

6. The method of claim 1, wherein said inert gas atom is doped by chemical vapor deposition.

7. The method of claim 1, wherein said inert gas atom is doped by dry etching.

20 8. The method of claim 1, wherein said polysilicon substrate is a panel of a liquid crystal display.

9. The method of claim 1, wherein said heat treatment is an excimer laser annealing.

10. The method of claim 9, wherein the process window of said

excimer laser is in the range of from 300 to 450 mJ/cm².